3.3.7.4 Pine Relict

3.3.7.4.1 Community Overview

"Pine relicts" are pine-dominated conifer forests that occur as discrete, isolated stands in the Driftless Area of southwestern Wisconsin. Most of these dry "relicts" are associated with sandstone or dolomite bluffs. The bedrock may outcrop as cliffs or ledges, or underlie a thin layer of soil. The vegetation surrounding the conifer-clad bluffs is more typical of southern Wisconsin, including hardwood forests, remnant prairies and savannas, and lands used for various agricultural purposes. The dominant trees of the "relicts" may be eastern white pine, red pine or, less commonly, jack pine. The pines sometimes occur in almost pure stands, but are often mixed with hardwoods. The groundlayer is sometimes strongly reminiscent of those found in the pine forests of northern Wisconsin, in the heart of our northern pineries. Representative understory plants include ericaceous shrubs such as blueberries (*Vaccinium angustifolium*, and *V. myrtilloides*) and huckleberry, and herbs or sub-shrubs such as wintergreen, pipsissewa, partridge-berry, and moccasin flower. These species of generally northern distributions are often mixed with familiar herbs of the southern Wisconsin's oak forests, savannas, and prairies.

Historically, the pine relicts were probably maintained by a combination of xeric site conditions and periodic wildfire.

3.3.7.4.2 Vertebrate Species of Greatest Conservation Need Associated with Pine Relict

Ten vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with pine relict (Table 3-150).

Table 3-150. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with pine relict communities.

Species Significantly Associated with Pine Relict
Herptiles
Black Rat Snake
Timber Rattlesnake
Species Moderately Associated with Pine Relict
Birds
Whip-poor-will
Veery
Canada Warbler
Red Crossbill
Herptiles
Bullsnake
Mammals
Eastern Red Bat
Hoary Bat
Northern Flying Squirrel

In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-150 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both pine relict and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:

- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of pine relict in each of the Ecological Landscapes (Tables 3-151 and 3-152).

- Using the analysis described above, a species was further selected if it had both a significant association with pine relict and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of pine relict. These species are shown in Figure 3-35.

Table 3-151. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with pine relict communities and their association with Ecological Landscapes that support pine relict.

Pine Relict

Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Herptiles (2)*	
	Black Rat Snake	Timber Rattlesnake
MAJOR		
Western Coulee and Ridges		
IMPORTANT		
Southwest Savanna		

Color Key

= **HIGH probability the species occurs in this Ecological Landscape**

= **MODERATE probability the species occurs in this Ecological Landscape**

= **LOW or NO probability the species occurs in this Ecological Landscape**

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Table 3-152. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with pine relict communities and their association with Ecological Landscapes that support pine relict.

Pine Relict	Birds (4)*				Herptiles (4)	Mammals (3)		
Ecological Landscape grouped by opportunity for management, protection, and/or restoration of this community type	Whip-poor-will	Veery	Canada Warbler	Red Crossbill	Bullsnake	Eastern Red Bat	Hoary Bat	Northern Flying Squirrel
MAJOR								
Western Coulee and Ridges								
IMPORTANT								
Southwest Savanna								
PRESENT (MINOR)								
Central Sand Plains								

Color Key

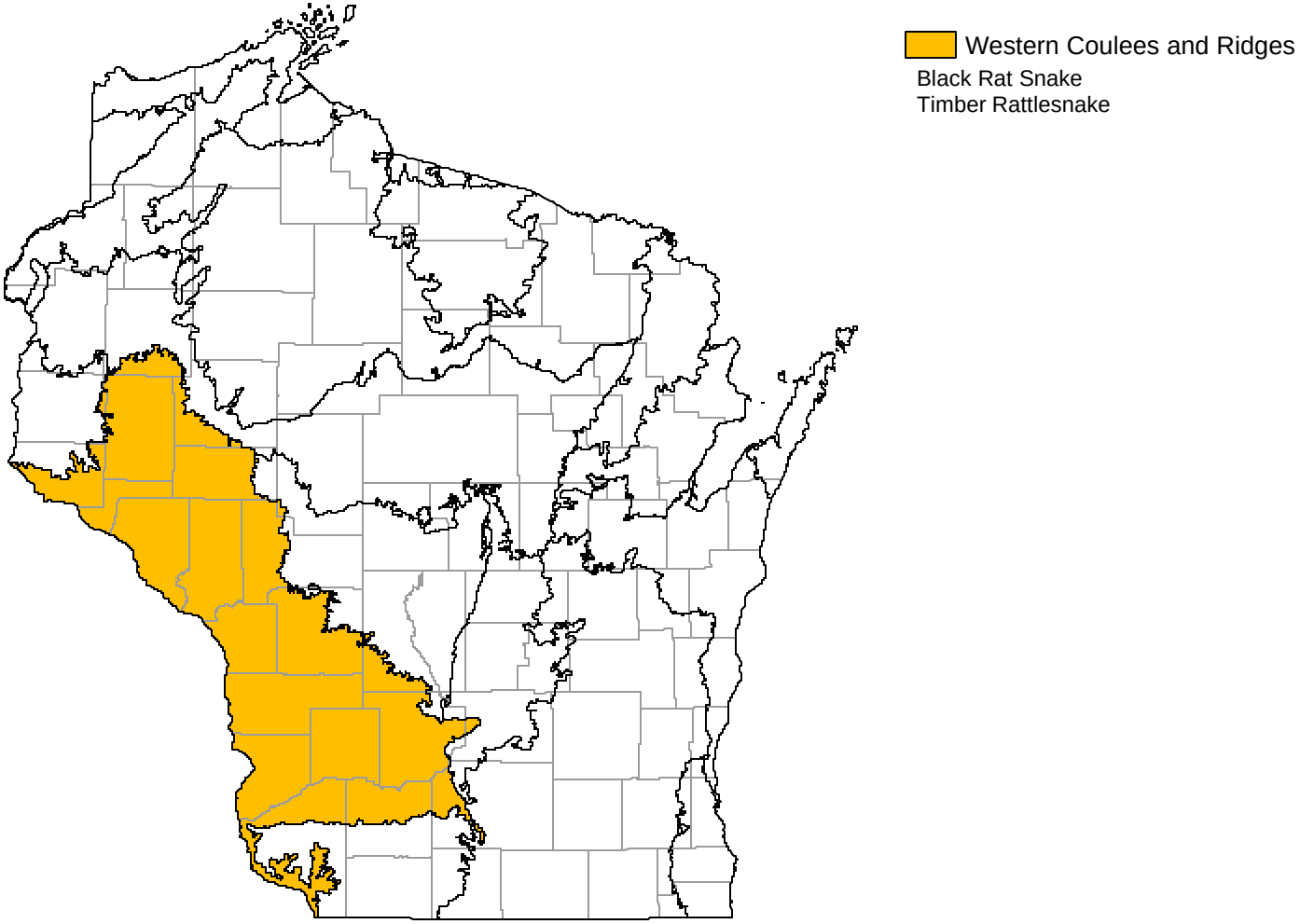
= **HIGH probability the species occurs in this Ecological Landscape**

= **MODERATE probability the species occurs in this Ecological Landscape**

= **LOW or NO probability the species occurs in this Ecological Landscape**

*** The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.**

Figure 3-35. Vertebrate Species of Greatest Conservation Need that have *both* a significant association with pine relict *and* a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of pine relict.



3.3.7.4.3 Threats and Priority Conservation Actions for Pine Relict

3.3.7.4.3.1 Statewide Overview of Threats and Priority Conservation Actions for Pine Relict

The following list of threats and priority conservation actions were identified for pine relict communities in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Section 3.3.7.4.3.2 unless otherwise indicated.

Threats and Issues

- Timber harvest can alter and simplify stand structure, and increase the hardwood component.
- Heavy equipment can damage the steep, easily erodible slopes and thin soils on which this community often occurs.
- Grazing can damage soils and the forest groundlayer, including seedling and sapling conifers.
- The small size and isolation of most stands increases the probability of species loss.
- Invasive plants, such as common buckthorn, Tatarian honeysuckle, and multiflora rose can be problems.
- The recent trend of constructing residences on blufftops can lead to direct and indirect disturbance of this community, and limit management options such as the use of prescribed fire.

Priority Conservation Actions

- Manage within an appropriate mosaic of other communities, which can include dry cliff, dry prairie, oak opening, and various types of southern hardwood forest.
- Emphasize protection of the largest and least disturbed sites. Because most stands are small and isolated by physical factors, another important conservation consideration is to target clusters of relicts that are close to one another, and exhibit variable site conditions.
- More research is needed to develop appropriate fire prescriptions for this type.

3.3.7.4.3.2 Additional Considerations for Pine Relict by Ecological Landscape

Special considerations have been identified for those Ecological Landscapes where major or important opportunities for protection, restoration, and/or management of pine relict exist. Those considerations are described below and are in addition to the statewide threats and priority conservation actions for pine relict found in Section 3.3.7.4.3.1.

Additional Considerations for Pine Relict in Ecological Landscapes with ***Major*** Opportunities for Protection, Restoration, and/or Management of Pine Relict

Western Coulee and Ridges

Examples occur at Pine Glen within Devils Lake State Park (Sauk County), Snow Bottoms State Natural Area (Grant County), Governor Dodge State Park (Iowa County), and Ridgeway Pines State Natural Area (Iowa County).

Additional Considerations for Pine Relict in Ecological Landscapes with ***Important*** Opportunities for Protection, Restoration, and/or Management of Pine Relict

Southwest Savanna

The known sites in this Ecological Landscape occur on private lands.